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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/024,178

12/21/2001

Jae Young Chung

2658-0277P

4389

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7590

11/25/2003

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EXAMINER

ERDEM, FAZLI

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/024,178

Applicant(s)

JAE CHUNG

Examiner

Fazli Erdem

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9, 12, 13 and 17 is/are rejected.
- 7) ☒ Claim(s) 5-8, 10, 11, 14-16, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Allowable Subject Matter***

1. Claims 5-8, 10, 11, 14-16, 18, and 19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 rejected under 35 U.S.C. 103(a) as being unpatentable over den Boer et al. (5,780,871) further in view of Bae (5,808,706) further in view of Bae et al. (6,256,076).

Regarding Claims 1 and 2, den Boer et al. disclose a TFT structure including a photo-imageable insulating layer for use with LCDs and image sensors where an active matrix liquid crystal display having a high pixel aperture ratio is disclosed. The display has an increase pixel aperture ratio as a result of the pixel electrodes formed over the insulating layer so as to overlap portions of the array address lines. Fig. 1 shows the storage capacitors. Den Boer et al. fail to disclose the plurality of storage capacitors in the required manner and the contact hole structure. However, Bae discloses a thin-film transistor liquid crystal display devices having cross coupled storage capacitors where the required plurality of capacitors in the required manner is disclosed. Furthermore, Bae et al. disclose liquid crystal displays having switching elements and storage

capacitors and a manufacturing method thereof where the required contact hole structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required plurality of storage capacitors in the required manner and the required contact hole structure in den Boer et al. as taught by Bae and Bae et al. respectively in order to have a liquid crystal display device with higher performance.

3. Claims 3, 4, and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over den Boer et al. (5,780,871) further in view of Bae (5,808,706) further in view of Bae et al. (6,256,076) further in view of Shimada et al. (6,052,162).

Regarding Claims 3, 4, and 9, den Boer et al. disclose a TFT structure including a photo-imageable insulating layer for use with LCDs and image sensors where an active matrix liquid crystal display having a high pixel aperture ratio is disclosed. The display has an increase pixel aperture ratio as a result of the pixel electrodes formed over the insulating layer so as to overlap portions of the array address lines. Fig. 1 shows the storage capacitors. Den Boer et al. fail to disclose the plurality of storage capacitors in the required manner, the contact hole structure, and the protective layer structure. However, Bae discloses a thin-film transistor liquid crystal display devices having cross coupled storage capacitors where the required plurality of capacitors in the required manner is disclosed. Furthermore, Bae et al. disclose liquid crystal displays having switching elements and storage capacitors and a manufacturing method thereof where the required contact hole structure is disclosed. Finally Shimada et al. disclose a transmission type liquid crystal display device with connecting electrode and pixel electrode connected via contact

hole through interlayer insulating film and method for fabricating where the required protective layer is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required plurality of storage capacitors in the required manner, the required contact hole structure, and the required protective layer structure in den Boer et al. as taught by Bae, Bae et al., and Shimada et al. respectively in order to have a liquid crystal display device with higher performance.

4. Claims 12, 13 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over den Kim (5,796,448) further in view of Rho et al. (6,057,896) further in view of Nishikawa et al. (5,724,107).

Regarding Claims 12, 13 and 17, Kim discloses a structure for a parasitic capacitor and a storage capacitor in a thin film transistor liquid crystal display and a method for making the same where the drain of the TFT which operates as a first upper electrode of the parasitic capacitor and a second upper electrode of the storage capacitor overlaps with the pixel electrode. An insulating layer is disposed between the second upper electrode and the pixel electrode. Insulating layer is also disposed between a first lower electrode of the parasitic capacitor at its associated upper electrode as well as a second lower electrode of the storage capacitor and its associated upper electrode. The overlapping direction of the two upper electrodes is identical with that of the two lower electrodes. Kim fails to disclose the required protective layer/contact hole and the required gate insulating layer in the required manner. However, Rho et al. disclose a liquid crystal displays using organic insulating material for a passivation layer and/or a gate insulating

laery and manufacturing method there of where the required protective layer/contact hole structures are disclosed. Furthermore, Nishikawa et al. disclose a liquid crystal display with transparent storage capacitors for holding electric charges where the required gate insulating layer in the required manner is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required protective layer/contact hole structure and the required gate insulating layer in the required manner in Kim as taught by Rho et al. and Nishikawa et al. respectively in order to manufacture a liquid crystal display device with higher performance.

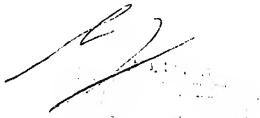
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

FE  
November 17, 2003



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